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UNEMPLOYMENT BY INDUSTRY—SOME COMMENTS ON ITS MEASUREMENT AND BEHAVIOR

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BUREAU OF THE CENSUS

AS INDICATED by the title, this paper is not a comprehensive, definitive study of unemployment in relation to industry. Rather, the paper is limited to examining three selected aspects of the phenomenon, presenting some analyses and conclusions, and showing the base data for further consideration by interested readers. Each of the three selected topics is treated in a separate section, and the detailed tables and an over-all statement on the reliability of the data are given in the two appendixes. The first analytical section is concerned with the problem of measurement and offers some conceptual cautions in the use of the most common statistical measures of unemployment by industry. The second and third sections are concerned with behavior—the role of unemployment in the labor force dynamics of three major industry groups and 1940-1950 changes in the rates of unemployment in the several industries.

1. Some Conceptual Problems in Measurement

The subject of this section is whether the common measures of unemployment by industry should be accepted at face value. The question is aimed at the concepts involved, not the practical difficulties of collecting reliable statistics.

The two most frequent measures of unemployment by industry are (1) the distribution of unemployed workers by industry, and (2) the rate of unemployment for a particular industry. In both cases, unemployed workers are allocated according to the industry in which they had worked at some time in the past. This allocation may be according to their last job, their "usual" job, or another similar basis. The method of deriving the industrial distribution of the unemployed, either in absolute or percentage terms, is self-evident. The computation of the unemployment rate for a particular industry merely involves dividing the number of unemployed in the industry, by the labor force for the particular industry; the latter is the sum of the unemployed and the currently employed workers in the industry.

Note: The opinions expressed are those of the writer and not necessarily those of the Bureau of the Census.

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The industrial distribution purportedly shows the kinds of workers—according to their industry—in the pool of unemployed at the given moment of time. This would seem to be essentially similar to such distributions as those by sex, race, age, and occupation in describing the currently disfranchised members of the labor force. The second measure, the unemployment rate purportedly pictures the economic fortunes of the particular industry, as expressed in terms of people. In providing information on the condition of an industry, the rate of unemployment apparently is similar to such financial indicators as profits and sales. Both the industrial distribution of the unemployed and the unemployment rate by industry are presumably useful for both time-to-time and interindustry comparisons, along the above-mentioned analytical lines.

THE INDUSTRIAL DISTRIBUTION

Taking the industrial distribution first, what aspects of the unemployed workers' actions in the labor market does it measure reliably? Past, present, future? All three? The answer is, of course, crucial to the valid use of this type of data. In the writer's opinion, the answer hinges primarily on how firmly workers are attached to an industry; or, more specifically, the strength of the bond between unemployed workers and the industry in which they worked some time in the past. If, on the average, this attachment is well established and lasting, we have a characteristic which is a significant facet of the unemployed worker's past activities and is also an important determinant of his present and future labor market actions. Industry thereby becomes a distinguishing characteristic, with the permanence or continuity of such other prime descriptive items as sex, race, age, and occupation.

If, on the other hand, the industrial attachment of the average worker is merely a happenstance, with no more significance than the number of stories in the building where he works, we have a characteristic which plays little or no part in the worker's labor market actions. The industrial distribution of the unemployed, thereby, merely pictures past events, and is of minor utility even in this respect. At some point along the broad range established by these two possibilities lies the true description of how firmly wedded the average unemployed worker is to the industry in which the statisticians have allocated him.

Appreciable numbers of workers are, of course, virtually wholly dependent on a particular industry for their livelihood, unless they are willing to make a major occupational or geographic change. For example, locomotive engineers are almost completely dependent on the railroad industry for employment because few locomotive engi-

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neers are hired by other industries. The other classic type of dependency exists where the worker lives in a "one-industry" town. For the locomotive engineer to leave the railroad industry normally means giving up the occupational skill which he spent many years to acquire. For almost any worker in a "one-industry" town to change jobs means moving his family to a different place, and perhaps learning a new trade. Prime economic motives, as well as human inertia, tend to keep such workers tied to a single industry even though unemployed for substantial periods of time.

These are certainly significant illustrations, but are they representative of the great mass of workers or only vivid exceptions to the general rule? A partial answer may be gleaned from a comparison of the industry of the unemployed worker's last job and the industry in which he obtains his next job. Table 1 presents some few data on this subject. The figures are based on fairly small samples, refer to only a scattering of ten months from 1949 to 1953, and are limited to three major industry groups. To state the obvious, these data should not be construed as definitive, even for the time and industries covered.

According to this table, about one-quarter of the unemployed whose

TABLE 1

Comparison between Major Industry Group of Last Job and of Current Job for
Persons Unemployed in One Month and Employed in the Following Month,
for Three Major Industry Groups and Ten Pairs of Months, 1949-1953

MAJOR INDUSTRY GROUP OF LAST JOB	PERCENTAGE DISTRIBUTION BY MAJOR INDUSTRY GROUP OF CURRENT JOB		
	<i>Total</i>	<i>Same as Last Job</i>	<i>Different^a from Last Job</i>
Construction:			
Total of 10 pairs of months	100	74	26
4 pairs of months in 1949-1950	100	76	24
6 pairs of months in 1951-1953	100	72	28
Manufacturing:			
Total of 10 pairs of months	100	66	34
4 pairs of months in 1949-1950	100	67	33
6 pairs of months in 1951-1953	100	65	35
Wholesale and retail trade:			
Total of 10 pairs of months	100	54	46
4 pairs of months in 1949-1950	100	54	46
6 pairs of months in 1951-1953	100	55	45

^a Includes all major industry groups other than the one specified; e.g. on the construction lines, "different" includes agriculture, mining, manufacturing, public utilities, trade, services, etc.

Note: Data are subject to sampling variability (see Appendix B).

Source: Current Population Survey, Bureau of the Census. See Appendix Table A-1.

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last job was in construction got their next job in some other major industry group. For the unemployed whose last job was in manufacturing, around one-third got their next job in a nonmanufacturing industry. Finally, in wholesale and retail trade, almost one-half of the unemployed got their next job in another major industry group. This seems to indicate quite clearly that, at least over the 1949-1953 period, the industrial attachment of unemployed workers was not very firm, even when measured in terms of such gross groupings as construction, manufacturing, and trade. It is unlikely that the proportion of shifts is exaggerated because of the use of last job as the base rather than a longer-term concept such as usual job. First, by definition, the unemployed worker held this last job for at least two weeks. Second, general employment conditions, especially during the 1951-1953 period, were such that workers probably tended to stay away from temporary "pickup" jobs.

The data in Table 1 were subdivided into two time periods as a check on whether the magnitudes are affected by economic conditions. It appears, however, that there is no significant difference between the 1949-1950 "recession" and the 1951-1953 "prosperity." The separate monthly figures from which Table 1 was summarized are given in Appendix Table A-1. Broadly discounting seasonal variations (most pronounced in construction), the percentages in each major industry group show a surprising degree of stability. This stability is especially noteworthy because the small monthly samples could be expected to yield relatively large random fluctuations.

Further information on the extent of interindustry mobility is provided by the data in Table 2 (which, incidentally, is based on considerably larger sample frequencies than Table 1). This table presents, for the same three major industry groups and for the years 1949 to 1952, the industrial attachments in two consecutive months of persons who were employed in both months. As the table shows, of those employed in construction in one month who were also employed in the next month, around 12 or 13 per cent were in a different major industry group. For those employed in manufacturing, the proportion was about 6 per cent in a different major industry group; and for trade, about 10 per cent.

Although some few of these differences may be ascribed to changes in the industrial activity of the business establishment, the great bulk of the differences reflect job changes by people who moved with little or no intervening period of unemployment. The apparent "trends" indicated for manufacturing and trade do not seem to warrant serious discussion. However, the general levels of change for the three major

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TABLE 2

Comparison of Industrial Attachment in Two Consecutive Months of Persons Employed in Both Months, for Three Major Industry Groups, 1949-1952

MAJOR INDUSTRY GROUP IN FIRST MONTH	PERCENTAGE DISTRIBUTION BY MAJOR INDUSTRY GROUP IN SECOND MONTH		
	<i>Total</i>	<i>Same as First Month</i>	<i>Different^a from First Month</i>
Construction:			
1949	100	87	13
1950	100	88	12
1951	100	88	12
1952	100	87	13
Manufacturing:			
1949	100	95	5
1950	100	94	6
1951	100	93	7
1952	100	93	7
Wholesale and retail trade:			
1949	100	92	8
1950	100	91	9
1951	100	90	10
1952	100	89	11

^a Includes all major industry groups other than the one specified; e.g. on the construction lines, "different" includes agriculture, mining, manufacturing, public utilities, trade, services, etc.

Note: Data are annual averages, each based on 12 pairs of observations. Data are subject to sampling variability (see Appendix B).

Source: Current Population Survey, Bureau of the Census.

industry groups do appear significant. The figures are quite stable even though the 1949-1952 period was fairly diverse economically. It should be emphasized that the proportions of difference shown refer to average change during a period of just a single month.

THE UNEMPLOYMENT RATE

Is the rate of unemployment for an industry an adequate indicator of the economic status of the industry, as measured in human terms? To help answer the question, a hypothetical example may be useful. The illustration developed below is unquestionably extreme but the essential point is entirely realistic.

Assume that there are two industries, A and B; the first employs 1,000 workers, the second 10,000 workers. Neither has any former workers in the ranks of the unemployed at the present time. In each case, therefore, the current rate of unemployment is zero. Suddenly, industry A fires 100 workers with only a few hours notice; at the same moment, industry B fires 1,000 workers. Assuming that all the separated

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workers decide to stay in the labor market and look for new jobs, it would appear that the unemployment rates for the two industries on the next day would be 10 per cent (or a shade below if any of the discharged workers got new jobs immediately).

How would these two rates stand a week later, if there were no additional firings? Is it reasonable to expect that, given similar geographic distributions, the two groups of unemployed would decline in generally similar fashion? Before offering an answer, let us examine the kinds of workers in each of the two industries.

Continuing our assumptions, industry A is in the financial field and it separated 100 of its 950 stenographers and typists; the 50 managerial workers were not touched. Industry B is in the manufacturing field and it separated 1,000 of its 9,500 production workers; the managerial workers here too were not touched. In view of the comparative employment opportunities existing in the mid-1954 labor market, it is clear that industry A's former stenographers and typists would obtain new jobs in short order. Industry B's former production workers would, in all likelihood, have a much lengthier sojourn among the unemployed. It might be expected, therefore, that within a week of the firings, the unemployment rate for industry A could be down from 10 per cent to 1 or 2 per cent. For industry B, the rate could still be around 7 or 8 per cent. Yet, both industries had reduced their work forces by equal proportions just a week before.

This example is, of course, extreme. However, the wide variations in occupational composition among the several industries, together with the marked differentials in employment opportunities for the various occupations, undoubtedly do produce distortions of the type (if not degree) illustrated here. Even within the manufacturing industries alone, there are very substantial variations in occupational composition, as shown by the 1950 population census data in Appendix Table A-2. Salaried managerial workers constituted around 1 per cent of the total employed in steel works, fabric mills, and synthetic fibers; and 6 per cent in dairy products, grain-mill products, and paints. Similarly, stenographers, typists, and secretaries made up less than 1 per cent of all persons employed in logging and saw mills, but more than 5 per cent in petroleum refining, photographic equipment, and drugs and medicines. At perhaps the other end of the occupational scale in terms of present-day employment opportunities, laborers constituted 1 per cent of the total employed in office machinery and apparel, and around 34 per cent in structural clay products. The respective unemployment rates for these three occupations—i.e. managers, stenographers, and laborers—were in the approximate ratio of 1 to 1½ to 7.

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The differential impact of unemployment on the various occupation groups within the same industry is illustrated by Appendix Table A-3. Appreciable differences exist even though the comparisons are limited to the semiskilled operatives and unskilled laborers in manufacturing. At the time of the 1950 census, when unemployment was generally low, the rate was around 5 per cent for operatives and 7 per cent for laborers, taking manufacturing as a whole. For most of the individual manufacturing industries, the difference in rates for these two occupations was between 1 and 3 percentage points. In some cases, however, the spread was much greater; for example, the gap was 14 points for tobacco manufactures and 8 points for ship building. In only one case was the unemployment rate for operatives greater than for laborers; in the watch and clock industry, the rate for operatives dipped 1 percentage point below the rate for laborers.

Part of this difference is undoubtedly due to the fact that laborers are probably discharged at a higher rate than operatives. Unskilled workers represent a smaller training investment to industry, and therefore can be fired with less loss. However, a substantial part of the difference is probably due to the greater ability of the semiskilled workers to find another job.

To help complete the picture, mention should be made of two well-recognized factors which, like occupation, can cause interindustry distortions in the rate of unemployment. One is geographic location. It is obvious that discharged workers can find jobs more rapidly in prosperous areas than depressed areas. Given a more favorable geographic distribution, workers laid off from one industry can, therefore, find new employment sooner than those of another industry. As a result of this "extraneous" factor, the unemployment rates of two industries with identical proportional reductions in employment can show markedly different declines.

The second factor is class of worker. For obvious reasons, wage and salary workers are much more exposed to unemployment than self-employed workers. Identical degrees of economic misfortune suffered by industries of substantially different class-of-worker composition can, therefore, produce markedly different unemployment rates. One industry fires its workers; the other goes on a diet of lower income and underemployment. Manufacturing is probably the best example of the former and agriculture is the classic illustration of the latter. Fortunately, the class-of-worker factor can be controlled statistically quite simply, by confining the computation of the unemployment rate to the wage-and-salary worker component of the industry.

Before ending this discussion of the unemployment rate, it is worth-

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while to examine its usefulness for a purpose other than to measure economic conditions in an industry. The rate for a particular industry at a specific moment in time might be viewed as an indicator of labor market conditions for workers in the industry, and, therefore, of great significance to any worker faced with loss of his job. That is, in measuring the industry's "residual" unemployment (rather than "total" separated), the rate might be construed as measuring the chances of a discharged worker getting a new job. Actually, however, the separated worker's fate will be determined essentially by elements (e.g. his occupation) which the industry's unemployment rate does not take into account. For example, a chemical engineer facing loss of his job had little to worry about in mid-1954, regardless of the unemployment rate for his industry. On the other hand, an elevator operator in the same industry had something to worry about if he lost his job.

CONCLUSIONS

In regard to the industrial distribution of the unemployed, the data presented above indicate that appreciable proportions of the unemployed get their next job in a major industry group other than the one they just left. However, at least in the three major industry groups covered, the majority do go back to the same group. It appears reasonable to state, therefore, that industry does represent a significant characteristic of unemployed workers, but not of the importance of such other characteristics as sex, age, race, and occupation. This type of data is, as a result, useful as a general descriptive measure of one aspect of the pool of unemployed workers; it should not, however, be interpreted as delimiting the future labor market activities of these workers to any substantial extent, except perhaps for some few specific industries. A practical proof of the secondary importance of industry is found in the help wanted section of any newspaper. The listings are basically subdivided by sex and occupation; age and (depending on local legal limitations) race receive frequent mention; industry, however, is rarely mentioned.

In regard to the unemployment rate, the key figure in the ratio (i.e. the number of unemployed ascribed to the industry) is only partially determined by the economic status of the industry. Although the industry itself fixes the initial size of this figure, immediately thereafter the figure is largely determined by the willingness or ability of the economy as a whole to re-employ these workers. Under ordinary conditions, perhaps the most important determinant of the rapidity with which the economy absorbs the separated workers is the occupations of these workers. (The prospective employer is not interested in

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merely hiring a worker; he wants someone to do a particular kind of work.) As a result, the occupational distribution of the industry's separated workers—which is essentially the resultant of the industry's occupational structure—has a prime effect on the destiny of the unemployment rate for the industry. Since there are major differences in the occupational structures of the several industries, interindustry comparisons of this rate can easily yield a deceptive picture of relative economic status at a particular moment in time.

The rate of unemployment, however, appears satisfactory as a measure of change in economic status of any single industry over time. Such time-to-time changes, moreover, can profitably be subject to interindustry comparisons. For at least two reasons, these comparisons would tend to reflect real changes in status for the several industries. First, the occupational composition of each industry normally changes quite slowly and, second, the relative vulnerability to unemployment of the various occupational groups remains fairly constant over time (see, for example, the 1940-1950 comparisons for these two factors in section 3, below).

In summary, therefore, if the figures and conclusions offered here are valid (see Appendix B), considerable restraint should be exercised in the use and interpretation of these two measures of unemployment by industry. The industrial distribution is not of prime importance as a descriptive characteristic of the unemployed, and the unemployment rate is meaningful only in limited contexts.

2. Unemployment in the Dynamics of Three Major Industry Groups

As many studies have shown, the character of the American labor force is dynamic rather than static. Large numbers of movements are constantly occurring as workers leave their jobs, get new jobs, leave the labor market, and come into the labor market. From the standpoint of this paper, the question can be raised whether there are industry differentials in these movements, specifically as they relate to unemployment. When workers leave their jobs, does the industry in which they worked affect the likelihood of their entering the ranks of the unemployed? And, from the point of view of worker accessions, in what proportions do the several industries draw upon the pool of unemployed?

The data used here to try to answer these questions are based on two observations of the individual worker, taken one month apart. Because the information is limited to a comparison of two points in time, it does not provide a continuous story. As a result, the data understate the number of movements made, since the figures do not

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include changes intermediate between the statuses shown by the two observations. In terms of the categories used, it is likely that only the unemployed group may be affected appreciably. Even in this case, however, major distortions are unlikely because the observation points average only three weeks apart.

It should be noted that these points are calendar weeks and, by definition, employment is given priority over unemployment. That is, the person must not have done any work during the survey week to be counted as unemployed. Therefore, in using these data, it should be emphasized that the "unemployed" category is essentially limited to those out of work for at least one calendar week. In addition, this category excludes those who were unemployed for one to four weeks, but whose period of unemployment fell between the monthly observation points.

The period covered by the data consists of the years 1949 to 1952. The selection of this span of time was determined by the purely practical consideration of availability of comparable data, rather than a carefully devised scientific thesis. The three major industry groups chosen for study here—construction, manufacturing, and trade—were selected on a more thoughtful basis. They include substantially more than half of the nonagricultural labor force and represent markedly different major segments of the economy. Since the data are based on a fairly small sample, they do not permit an analysis of individual industries.

In evaluating the statistics which follow, it is useful to have as a yardstick an indication of the month-to-month changes in total employment for the particular major industry group. The greater the monthly swings in employment, the greater the movements in and out of the major industry group to be expected. As shown in Appendix Table A-4, the monthly change in construction ranged between zero and 10 per cent, and, on an annual basis, averaged out at between 4 and 5 per cent. Manufacturing ranged between zero and 6 per cent, and averaged out at about 1.5 per cent. Trade presented virtually the same picture as manufacturing; the few substantial seasonal swings were balanced by marked stability during the remainder of the year.

SEPARATIONS

Data on the separations from each of the three major industry groups are given in Table 3, which shows the annual averages of the month-to-month patterns of change. As can be expected because of differentials in magnitude of seasonal variations, construction exhibits the highest monthly rate of separation, trade next, and manufacturing

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TABLE 3

Persons Employed in Specified Major Industry Group in One Month Distributed According to Their Employment Status and Major Industry Group in the Following Month, for Three Major Industry Groups, 1949-1952

MAJOR INDUSTRY GROUP AND YEAR	TOTAL EMPLOYED IN SPECIFIED GROUP IN GIVEN MONTH (<i>per cent</i>)	PER CENT EMPLOYED IN SAME GROUP IN FOLLOWING MONTH	PER CENT NOT EMPLOYED. IN SAME GROUP IN FOLLOWING MONTH	PERCENTAGE DISTRIBUTION OF PERSONS NOT EMPLOYED IN SAME GROUP IN FOLLOWING MONTH			
				<i>Total</i>	<i>Employed in Different^a Group</i>		<i>Not in Labor Force</i>
					<i>Unemployed</i>		
Construction:							
1949	100	80.5	19.5	100	60.3	28.4	11.3
1950	100	82.3	17.7	100	65.0	20.9	14.1
1951	100	83.0	17.0	100	69.2	16.0	14.8
1952	100	82.4	17.6	100	71.1	16.2	12.7
Manufacturing:							
1949	100	91.0	9.0	100	57.6	25.8	16.6
1950	100	91.5	8.5	100	64.3	17.3	18.4
1951	100	90.3	9.7	100	66.2	11.9	21.9
1952	100	89.8	10.2	100	70.7	10.9	18.4
Wholesale and Retail Trade:							
1949	100	87.5	12.5	100	58.9	13.0	28.1
1950	100	86.2	13.8	100	62.5	10.1	27.4
1951	100	84.8	15.2	100	62.6	7.1	30.3
1952	100	84.3	15.7	100	64.4	7.0	28.6

^a Includes all major industry groups other than the one specified; e.g. on the construction lines, "different" includes agriculture, mining, manufacturing, public utilities, trade, services, etc.

Note: Data are annual averages, each based on 12 monthly percentage distributions. Data are subject to sampling variability (see Appendix B).

Source: Current Population Survey, Bureau of the Census. See Appendix Table A-5.

the lowest. During the four-year period, approximately 18 per cent of the workers in construction left the industry group during the average month. In trade, about 14 per cent left, and in manufacturing around 9 or 10 per cent. For each of the three industry groups, the four annual figures depart from the "four-year" average by no more than 2 percentage points. There is some evidence of a trend in the annual figures for trade, but no striking conclusions appear warranted by the available data.

The size of these out-movements is worthy of notice, especially when compared with the monthly changes in total employment in these industry groups. Construction, with an average monthly change of 4 to 5 per cent in total employment, separates about four times this proportion of workers each month. Manufacturing and trade, with average monthly changes of around 1.5 per cent in total employment, separate six and ten times this proportion, respectively. Granted that response variations tend to increase the apparent size of this out-

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movement, still the differentials between the two sets of levels are unquestionably striking.

Given this massive monthly separation, where do all these workers go? There are three possible destinations—employment in another industry group, unemployment, and out of the labor force. (Another possibility is, of course, for the worker to die; this avenue of departure has been eliminated from these calculations.) The right-hand portion of Table 3 shows the percentages of separated workers who went to each of the three categories. Before examining the figures, it is worth repeating the earlier cautions that the “employed in different major industry group” category may be somewhat overstated because of enumeration problems, and the “unemployed” category somewhat understated because of the nature of the data.

The data show that the patterns of destination for the three industry groups are apparently affected by changing economic conditions. This seems quite clear, especially with respect to the “different industry” and “unemployed” categories. The patterns differ in this respect from the over-all separation rates, which, as mentioned above, show no clear trend, except perhaps in trade. Because of these changes through time, certain of the interindustry differentials are revealed most clearly through year-to-year comparisons among the three industry groups.

To indicate the general levels first, the “different industry” category took the majority of separated workers in all three industries. For construction and manufacturing, the proportion ranged from around 60 to 70 per cent; for trade, it ranged around 60 to 65 per cent. The unemployed category consistently ranked second in relative importance in construction, moving in the 16 to 28 per cent range. In trade, on the other hand, this category consistently ranked last, ranging from 7 to 13 per cent. In manufacturing, this category ranked last in three of the four years, moving in the 11 to 26 per cent range. The “not in labor force” category filled in the vacant second or third position and exhibited generally stable levels of around 13, 18, and 28 per cent in construction, manufacturing, and trade, respectively.

To examine the interindustry differentials more closely, let us return to the “different industry” category. Construction and manufacturing bore a consistent relationship to each other in this regard, with the former exceeding the latter by between 1 to 3 points in all four years. Trade seemed to go its own way, being on the same level as the other two in 1949 but substantially lower than construction and manufacturing by 1952.

The interindustry comparison of the unemployed levels shows construction 3 to 5 percentage points above manufacturing, and about

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10 points above trade. These comparatively wide differences for unemployed among the three industry groups are largely counterbalanced by the differences in the "not in labor force" category. Here, construction was 5 to 7 points below manufacturing, and around 15 points below trade. The relative importance of these two categories in the three industry groups is probably largely the result of the proportion of females in each industry group. Women constitute about one-thirtieth of total employment in construction, one-fourth in manufacturing, and one-third in trade. To state the obvious, women are much more likely than men to leave the labor force upon separation from a job.

The movements exhibited by the data in Table 3 are worthy of notice, especially since they were quite similar for all three industry groups. As can be anticipated from the changing economic conditions over the 1949-1952 period, the unemployed category bulked largest in 1949, started to taper off in 1950, and settled to a fairly stable level in 1951 and 1952. Conversely, the "different industry" category moved in the opposite direction. The "not in labor force" group remained quite stable, apparently unaffected by economic changes. The movements shown by this last group may have some pattern, but the available information does not seem to support any firm conclusions.

In evaluating the role of unemployment as shown by these figures, it should be recognized that 1949-1952 was a generally prosperous period, and that the data tend to understate the unemployed category. It still appears striking, however, that only in 1949 (and then in only two of the three industry groups) did the unemployed category reach even close to half the size of the "different industry" category. Furthermore, allowing for some chance fluctuations, the monthly relationships are essentially similar to the annual averages. Examination of the monthly data shown in Appendix Table A-5 reveals that in only a handful of months did the unemployed exceed half the "different industry" group. Construction exhibited this characteristic in some winter months, particularly during 1949 and 1950. In manufacturing, this occurred in only three months (January and October 1949, and January 1950), out of the forty-eight months considered here. In trade, this never happened during the four-year period.

ACCESSIONS

Data on accessions to each of the three major industry groups are given in Table 4. In this table, the focus is on what the workers in an industry group in a particular month had been doing in the *previous* month. (In Table 3, on the other hand, the focus is on what

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the workers in an industry group in a particular month were doing in the *following* month.)

The magnitudes of the in-movements for each industry group are not especially surprising in view of, first, the size of the out-movements shown in Table 3 and, second, the trends in total employment in the three industry groups. As shown in Appendix Table A-4, the annual averages of the monthly percentage changes in total employment com-

TABLE 4

Persons Employed in Specified Major Industry Group in One Month Distributed According to Their Employment Status and Major Industry Group in the Previous Month, for Three Major Industry Groups, 1949-1952

MAJOR INDUSTRY GROUP AND YEAR	TOTAL EMPLOYED IN SPECIFIED GROUP IN GIVEN MONTH (<i>per cent</i>)	PER CENT EMPLOYED IN SAME GROUP IN PREVIOUS MONTH	PER CENT NOT EMPLOYED IN SAME GROUP IN PREVIOUS MONTH	PERCENTAGE DISTRIBUTION OF PERSONS NOT EMPLOYED IN SAME GROUP IN PREVIOUS MONTH			
				<i>Employed in Different^a</i>		<i>Unemployed</i>	<i>Not in Labor Force</i>
				<i>Total</i>	<i>Group</i>		
Construction:							
1949	100	80.5	19.5	100	62.9	26.8	10.3
1950	100	81.5	18.5	100	64.7	24.7	10.6
1951	100	82.6	17.4	100	69.3	16.0	14.7
1952	100	81.8	18.2	100	72.9	15.2	11.9
Manufacturing:							
1949	100	91.7	8.3	100	62.3	21.9	15.8
1950	100	90.6	9.4	100	62.9	20.4	16.7
1951	100	90.3	9.7	100	66.4	12.9	20.7
1952	100	89.5	10.5	100	69.2	11.6	19.2
Wholesale and Retail Trade:							
1949	100	87.3	12.7	100	59.1	12.3	28.6
1950	100	86.4	13.6	100	61.3	11.7	27.0
1951	100	84.8	15.2	100	60.4	8.1	31.5
1952	100	84.1	15.9	100	63.4	6.9	29.7

^a Includes all major industry groups other than the one specified; e.g. on the construction lines, "different" includes agriculture, mining, manufacturing, public utilities, trade, services, etc.

Note: Data are annual averages, each based on 12 monthly percentage distributions. Data are subject to sampling variability (see Appendix B).

Source: Current Population Survey, Bureau of the Census. See Appendix Table A-6.

puted on a net (i.e. algebraic) basis did not exceed 1 per cent in any of the three industry groups over the four-year period. For construction, the average monthly net changes centered around 0.5 per cent; for trade around 0.2 per cent. For manufacturing, the 1949-1950 levels were about 0.9 per cent; the 1951-1952 levels were around 0.3 and 0.4 per cent. (The direction of trend, disregarded here in order to indicate magnitudes more clearly, is shown in Appendix Table A-4.)

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Since the average monthly net changes were quite small, accessions would, of necessity, be in close balance with separations.

Looking at the sources of accessions, the pattern for each of the three industry groups is very much like the pattern of destinations shown in the separation figures. A comparison of the last three columns of Tables 3 and 4 reveals the striking similarities. Some differences do, of course, exist, especially in the unemployed category; these are largely tied to the rise and fall of total unemployment. Comparison of the monthly figures in Appendix Tables A-5 and A-6 shows greater differences than the annual averages, but this is probably largely due to seasonal variations and sporadic statistical aberrations.

The reason for this close similarity in each industry group's patterns of separation and accession is not entirely clear, at least to the writer. Although, at first glance, it might appear that the conceptual nature of the data causes this similarity, this is not so. The same sets of tabulations were used to derive the separation and accession figures, but the only overlap consists of those persons employed in the same industry group in both months. The two types of persons under immediate consideration—separations and accessions—do not overlap and, theoretically, could fall in any pattern. Accepting the fact that the similarity does not result from conceptual limitations in the data, there still remains the problem of practical limitations. It may be that the random variations to which this type of data is sensitive (see Appendix B) are sufficiently numerous to bury real differences under a blanket of spurious identity. However, despite this emphasis on problems in the data, it is still, of course, entirely possible that what the data show are the true patterns of separation and accession in construction, manufacturing, and trade.

3. Changes in Rate of Unemployment, 1940-1950

This section, which is based on the rates of unemployment for the several industries shown in the 1940 and 1950 population censuses, is concerned with the relative changes in these rates. To measure these changes, a ratio of the 1950 rate to the 1940 rate was computed for each industry; for convenience, the ratios have been multiplied by 100. Since 1940 was used as the base, the ratio moves inversely with the decline in unemployment over the decade; i.e. the smaller the ratio, the greater the relative gain.

There are, unquestionably, a number of difficulties with the census data on unemployment. One of the most important, for the present purpose, is that the 1940 industry data for the unemployed cover all workers; figures limited to wage and salary workers are not available.

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The unemployment rates used here are, therefore, based on all workers rather than the wage-and-salary segment. Another difficulty is that the available data refer to "usual" job of the unemployed in 1940, and "last" job in 1950; it is unlikely, however, that this difference has substantial impact on the relationships analyzed below. On the positive side, these census data have the important virtue of providing a comprehensive and detailed story which, with care in interpretation, can be kept substantially free of distortion.

As a prelude to the analysis of the figures, it is appropriate to examine three of the previously mentioned factors which can affect comparisons of the rates. Considering the fact that we are dealing with a ten-year period with major technological changes, the apparent degree of stability in at least two of these factors is quite striking.

The broad occupational structures of the several major industry groups have not changed appreciably between 1940 and 1950. Taking manufacturing as a whole, clerical and sales workers made up 14 per cent of the total employed in both years, craftsmen 20 per cent in both years, operatives 43 per cent in 1940 and 46 per cent in 1950, and laborers 14 per cent in 1940 and 9 per cent in 1950. In construction, the 1940 and 1950 proportions were 59 and 57 per cent for craftsmen, and 21 and 19 per cent for laborers. In trade, the 1940 and 1950 proportions were 27 and 23 per cent for managerial workers, and 37 and 39 per cent for clerical and sales workers. Some industry groups showed somewhat greater differences, but the general pattern is one of stability.

The relative vulnerability to unemployment of the several major occupation groups has not changed radically. The white-collar groups still had lower unemployment rates than the manual workers. The laborers had the highest rate in both 1940 and 1950, but ranked considerably better in the latter year vis-à-vis their fellow manual workers and, especially, the service workers.

The most marked changes probably occurred in the class-of-worker composition of the several industries. In almost all cases, the percentage of wage and salary workers increased and, conversely, the percentage of self-employed workers decreased. As a result, the proportions of workers most exposed to unemployment were generally greater in 1950 than in 1940. From the point of view of industry differentials, however, the changes were not of sufficient magnitudes to cause major distortions in the relationships shown by the unemployment rates. Few, if any, of the 1950 unemployment rates are likely to be affected by as much as 0.5 percentage point relative to 1940, and the ratios are probably not affected by more than two or three points at the most.

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The examination of occupational structure and comparative vulnerability to unemployment in 1940 and 1950 was, it should be emphasized, performed on broad levels only, and not intensively explored even in this respect. It appears most likely, however, that the movements described in the analysis which follows have resulted primarily from changes in the basic economic status of the several industries. Shifts in occupational structure, relative employability, and class-of-worker composition probably had only a minor role in determining the changes in the unemployment rates.

April 1940 was still largely a depression time. The war in Europe had brought appreciable amounts of work to some American industries but our own defense effort was essentially in the talking stage. April 1950 was entirely different, although again the economy was on the upturn. This time, however, we were coming out of a short and fairly shallow recession which occurred after years of wartime boom and postwar prosperity. Taking the civilian labor force as a whole, the 1940 census showed an unemployment rate of 15 per cent; the 1950 census showed 5 per cent.

MAJOR INDUSTRY GROUPS

As Table 5 indicates, the unemployment rates for the several major industry groups all decreased over the decade, but the ratios of change ranged quite widely around the over-all level of 32. At the extremes, construction exhibited the greatest gain with a ratio of 20; and personal services the smallest gain with a ratio of 48. Business and repair services and finance, on the other hand, were within a single point of the average.

The position of construction merits a word of caution. The 1940 unemployment rate for this industry (which towers above the rates for all other industries) was substantially inflated by the public emergency work programs. Included as unemployed workers attached to construction were many persons who, but for these programs, would never have been in this industry. Although construction was certainly not in an especially healthy economic condition in early 1940, its illness was not as severe as these figures indicate. And, therefore, the 1940-1950 gain in construction has not been as great as the ratio of 20 indicates.

Other industry groups with better-than-average ratios were mining (23), professional services (23), and the agriculture category (28). Industries with poorer-than-average ratios included entertainment (35), the public utilities group (38), manufacturing (40), public administration (43), and trade (43).

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TABLE 5

Unemployment Rates for the Experienced Civilian Labor Force,
by Major Industry Group, 1950 and 1940

MAJOR INDUSTRY GROUP	UNEMPLOYMENT RATE		RATIO ^a OF 1950 RATE TO 1940 RATE
	1950	1940 ^b	
All industries ^c	3.55	11.05	32
Agriculture, forestry, and fisheries	2.03	7.28	28
Mining	4.05	17.74	23
Construction	8.08	41.39	20
Manufacturing ^d	4.06	10.07	40
Durable goods	4.09	9.42	43
Nondurable goods	3.97	10.31	39
Transportation, communication, and other public utilities	3.29	8.72	38
Wholesale and retail trade	3.51	8.08	43
Finance, insurance, and real estate	1.74	5.23	33
Business and repair services	3.81	12.14	31
Personal services	4.66	9.69	48
Entertainment and recreational services	6.10	17.36	35
Professional and related services	1.34	5.73	23
Public administration	3.07	7.17	43

^a Actual ratio multiplied by 100.

^b Data for 1940 not completely adjusted for differences in industrial classification with 1950 data.

^c Excludes persons who did not report industry.

^d Includes persons in "Not specified manufacturing industries."

Note: Data for 1940 are subject to sampling variability (see Appendix B).

Source: *Census of Population, 1950*, Bureau of the Census, Vol. II, Part 1, Table 130; 1940 Series P-14, No. 13. See Appendix Table A-7.

The ratios of change do not appear to follow any particular pattern. The extractive industries (i.e. agriculture and mining) both showed gains more marked than the average. On the other hand, among the service industry groups the ratios ranged just about from one extreme to the other. It is noteworthy, however, that at least two of the most depressed industries in 1940—mining and construction—made among the greatest relative gains.

Manufacturing apparently did a little better than trade during the decade, but both were considerably below the average in ratio of change. Within manufacturing, nondurable goods made a somewhat better gain than durable goods, the respective ratios being 39 and 43. This may be a little surprising, considering what the depression did to heavy industry. Part of the explanation may lie in the public emergency sewing projects which resulted in some inflation of the 1940 unemployment rate for nondurables.

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SPECIFIC INDUSTRIES

Since some 98 per cent of the employment in the agriculture, forestry, and fisheries major group is concentrated in agriculture, it is no surprise that the total and its prime component showed the same ratio of change (28). The forestry and fisheries components, however, exhibited strikingly different trends, with ratios of 10 and 53 respectively. Too much weight should not be placed on the remarkable gain for forestry; the situation was similar to the one in construction. The 1940 unemployment rate for forestry was markedly affected by the public emergency work programs. In regard to fisheries, only about twenty-five of the more than 100 industries listed separately in Appendix Table A-7 had a lower rate of recovery.

Among the individual mining industries, there were some differences in ratio of change. Coal mining, with a ratio of 23, did as well as the industry group as a whole. Crude petroleum and natural gas did less well with 29, and metal mining worst with 33. The ratio of 14 for the residual nonmetallic group reflects, in similar fashion to construction and forestry, some 1940 public emergency work.

The individual durable goods manufacturing industries varied widely around the over-all ratio of 43. Steel works showed the greatest gain, with a ratio of 24. Structural clay products also did relatively well (28). On the other hand, the several transportation equipment industries did very poorly. The automobile and railroad equipment industries had ratios of 54 and 86, respectively. The other two industries—aircraft and ship building—actually had substantially higher unemployment rates in 1950 than in 1940; their ratios of change were 123 and 163.

Ships and airplanes were both in great demand in prewar and war periods; the postwar era saw a letdown in demand. The similarity ends there, since in 1940 the historical backgrounds of the two industries were entirely different. Aircraft was still a new industry whereas ship building was, of course, one of our oldest. In 1940, aircraft had the lowest unemployment rate of all durable goods industries. A decade later, however, this industry's position in the labor market closely approximated that of older industries, and the unemployment rate for aircraft in 1950 was exactly the same as that for durable goods manufacturing industries as a whole. Ship building, which was already feeling the war boom in early 1940, reverted to its pre-1940 ailing condition and showed the highest unemployment rate of all durable goods industries in 1950.

The ratios of change for the nondurable goods manufacturing industries did not vary as widely as the durable goods ratios. The best showings were made by apparel with a ratio of 26, and printing and

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publishing with a ratio of 31. (The 1940 unemployment rate for apparel, however, was inflated by the emergency sewing projects.) Among the industries which did comparatively poorly were canning (72), synthetic fibers (70), tobacco (66), and leather products other than footwear (64). The situation for synthetic fibers is somewhat analogous to that for aircraft; in 1940, synthetic fibers was still a fairly new industry, with the lowest unemployment rate of all the nondurable manufacturing industries.

There was a marked similarity in the ratios of change for the various industries in the public utilities group. With just two exceptions, the ratios were in the 30's or 40's. The two exceptions were taxicab service (54) and water transportation (72). The trucking industry made the greatest relative gain (31), despite a substantial increase in the proportion of wage and salary workers in the industry.

The wholesale and retail segments of trade showed about the same ratios of change (45 and 43, respectively). In retail trade, the greatest relative gains occurred in shoe stores (30) and dairy products stores (32). The smallest proportionate gains were in liquor stores (67) and jewelry stores (60).

In personal services, the private households, hotels, and laundering-cleaning components all had ratios in the 50's. These relatively low decreases in rate of unemployment are probably due to the basic irregularity of work in these fields. In the retail areas, five and ten cent stores, gas stations, and eating and drinking places have somewhat similar employment conditions; they also showed ratios in the 50's.

Theaters and motion pictures (40) exhibited a slightly greater gain than radio and television (43). Like some of the industries mentioned above, radio was a comparatively new industry in 1940, with a low unemployment rate. The movie and theater industry, on the other hand, continued to suffer from instability in employment, albeit on a more prosperous level; also, by 1950, the industry had already receded appreciably from its postwar boom.

Educational services had one of the greatest gains of any industry, with a ratio of 12. However, part of this gain is the result, as in construction, of public emergency work programs which tended to inflate the 1940 unemployment rate for the industry.

In public administration, the state and local component apparently showed a more substantial gain than the federal component, with respective ratios of 23 and 39. The size of the latter ratio is, however, probably overstated. Certain conceptual factors and reporting problems in the enumeration and classification of public emergency workers tended to deflate the 1940 unemployment rate for federal public

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administration. Postal service, uniquely, had a ratio of 114, mainly because of its abnormally low unemployment rate in 1940. A postal job during the 1930's was a sought-for haven and few left to seek other employment.

4. Conclusion

Since the three analytical sections of this paper are separate and distinct, it is not possible to present a single over-all concluding statement. For summary purposes, however, a brief statement on each section appears worthwhile.

Section 1 discussed the conceptual limitations of the two most common measures of unemployment by industry—the industrial distribution and the unemployment rate. On the basis of certain statistical indications, it was concluded that the industrial distribution is not of prime importance as a way of characterizing the unemployed; and that the unemployment rate is essentially useful for time-to-time comparisons, rather than interindustry comparisons at a single moment in time.

Section 2 presented data which showed that substantial proportions of workers moved in and out of construction, manufacturing, and trade each month during the 1949-1952 period. Unemployment, however, played a comparatively minor role in the labor market movements of the workers in these three major industry groups.

Section 3 described the changes in unemployment rates for the several industries between 1940 and 1950. For all industries combined, the 1950 rate was about one-third the 1940 rate. Some industries, however, had 1950 unemployment rates less than one-fifth their 1940 rates, while aircraft manufacturing and ship building had 1950 rates higher by one-fifth and three-fifths, respectively, than their 1940 rates.

Finally, to put this material in its proper qualitative setting, a statement on reliability of data is given in Appendix B. A perusal of this statement is earnestly recommended to the reader.

Appendix A

TABLE A-1

Comparison between Major Industry Group of Last Job and of Current Job
for Persons Unemployed in One Month and Employed in the Following Month,
for Three Major Industry Groups and Ten Pairs of Months, 1949-1953

MAJOR INDUSTRY GROUP OF LAST JOB, AND SURVEY MONTHS	NUMBER OF PERSONS IN SAMPLE	PERCENTAGE DISTRIBUTION BY MAJOR INDUSTRY GROUP OF CURRENT JOB		
		Total	Same as Last Job	Different ^a from Last Job
Construction:				
Total of 10 pairs of months	619	100	74	26
4 pairs of months in 1949-1950	350	100	76	24
March-April 1949	127	100	78	22
May-June 1949	86	100	74	26
September-October 1949	50	100	66	34
January-February 1950	87	100	79	21
6 pairs of months in 1951-1953	269	100	72	28
December 1951-January 1952	18	100	61	39
March-April 1952	62	100	79	21
May-June 1952	38	100	79	21
September-October 1952	16	100	81	19
January-February 1953	83	100	63	37
March-April 1953	52	100	75	25
Manufacturing:				
Total of 10 pairs of months	923	100	66	34
4 pairs of months in 1949-1950	539	100	67	33
March-April 1949	122	100	59	41
May-June 1949	157	100	62	38
September-October 1949	140	100	71	29
January-February 1950	120	100	75	25
6 pairs of months in 1951-1953	384	100	65	35
December 1951-January 1952	64	100	70	30
March-April 1952	73	100	59	41
May-June 1952	69	100	62	38
September-October 1952	54	100	69	31
January-February 1953	73	100	67	33
March-April 1953	51	100	67	33
Wholesale and retail trade:				
Total of 10 pairs of months	550	100	54	46
4 pairs of months in 1949-1950	315	100	54	46
March-April 1949	64	100	47	53
May-June 1949	108	100	52	48
September-October 1949	70	100	63	37
January-February 1950	73	100	53	47
6 pairs of months in 1951-1953	235	100	55	45
December 1951-January 1952	39	100	64	36
March-April 1952	43	100	60	40
May-June 1952	54	100	56	44
September-October 1952	31	100	52	48
January-February 1953	36	100	56	44
March-April 1953	32	100	41	59

^a Includes all major industry groups other than the one specified; e.g. on the construction lines, "different" includes agriculture, mining, manufacturing, public utilities, trade, services, etc.

Note: Data are subject to sampling variability (see Appendix B).

Source: Current Population Survey, Bureau of the Census.

TABLE A-2

Persons in Selected Occupations as a Percentage of Total Employed in the Particular Industry, for Manufacturing Industries, 1950

<i>Industry</i>	<i>Managers, Officials, and Proprietors (n.e.c.)—Salaried</i>	<i>Stenographers, Typists, and Secretaries</i>	<i>Laborers, except Farm and Mine</i>
Manufacturing	2.86	2.47	8.81
Durable goods	2.46	2.44	11.27
Logging	1.07	0.12	77.44
Sawmills, planing mills, and mill work	2.15	0.67	31.34
Miscellaneous wood products	2.83	1.05	15.84
Furniture and fixtures	2.31	1.65	6.34
Glass and glass products	2.10	2.58	10.65
Cement, and concrete, gypsum, and plaster products	3.71	2.04	21.57
Structural clay products	3.34	1.57	33.97
Pottery and related products	1.89	2.00	11.95
Miscellaneous nonmetallic mineral and stone products	4.24	3.24	10.50
Blast furnaces, steel works, and rolling mills	1.46	1.56	20.63
Other primary iron and steel industries	2.32	1.52	16.39
Primary nonferrous industries	2.25	2.62	12.22
Fabricated steel products	3.07	2.95	7.15
Fabricated nonferrous metal products	3.14	2.04	4.34
Not specified metal industries	4.82	4.13	6.43
Agricultural machinery and tractors	2.63	3.04	7.00
Office and store machines and devices	3.48	4.32	1.32
Miscellaneous machinery	3.22	3.06	3.78
Electrical machinery, equipment, and supplies	2.32	3.57	3.57
Motor vehicles and motor vehicle equipment	1.78	2.09	5.58
Aircraft and parts	1.50	3.51	1.50
Ship and boat building and repairing	1.69	2.31	8.39
Railroad and miscellaneous transpor- tation equipment	1.98	2.85	7.02
Professional equipment and supplies	3.61	4.36	1.71
Photographic equipment and supplies	2.60	5.33	3.44
Watches, clocks, and clockwork- operated devices	2.27	2.70	1.92
Miscellaneous manufacturing industries	3.38	2.91	3.25
Nondurable goods	3.30	2.45	6.01
Meat products	3.27	1.93	13.47
Dairy products	6.13	1.82	9.28
Canning and preserving fruit, vegetables, and sea foods	4.06	2.20	13.68
Grain-mill products	6.30	3.08	16.25
Bakery products	3.69	0.95	3.08
Confectionery and related products	2.57	1.94	5.43
Beverage industries	5.65	2.51	12.93
Miscellaneous food preparations and kindred products	5.54	2.29	15.15
Not specified food industries	6.50	4.90	8.99

(continued on next page)

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TABLE A-2 (continued)

<i>Industry</i>	<i>Managers, Officials, and Proprietors (n.e.c.)—Salaried</i>	<i>Stenographers, Typists, and Secretaries</i>	<i>Laborers, except Farm and Mine</i>
Nondurable goods (cont.)			
Tobacco manufactures	2.50	1.07	7.89
Knitting mills	1.53	1.20	1.34
Dyeing and finishing textiles, except knit goods	1.77	1.55	5.21
Carpets, rugs, and other floor coverings	1.86	2.18	9.29
Yarn, thread, and fabric mills	1.37	1.03	5.28
Miscellaneous textile mill products	3.95	2.45	5.18
Apparel and accessories	1.67	1.05	0.91
Miscellaneous fabricated textile products	2.44	1.95	3.08
Pulp, paper, and paperboard mills	2.41	1.88	12.89
Paperboard containers and boxes	3.59	2.27	7.78
Miscellaneous paper and pulp products	4.20	4.43	6.76
Printing, publishing, and allied industries	5.21	4.31	1.35
Synthetic fibers	1.38	2.08	6.58
Drugs and medicines	5.57	7.03	3.41
Paints, varnishes, and related products	5.75	4.85	6.22
Miscellaneous chemicals and allied products	4.58	4.99	11.15
Petroleum refining	4.74	5.03	9.22
Miscellaneous petroleum and coal products	5.39	2.42	18.82
Rubber products	2.74	3.06	6.36
Leather: tanned, curried and finished	2.15	1.26	11.07
Footwear, except rubber	1.54	1.09	1.88
Leather products, except footwear	2.04	1.49	2.56
Not specified manufacturing industries	3.98	4.69	6.96

Note: Data subject to sampling variability. See Appendix B.
n.e.c. = not elsewhere classified.

Source: Bureau of the Census. Figures shown here based on a special summarization of 1950 Population Census data. Similar figures can be obtained from 1950 Population Census Bulletin Series P-E, No. 1c.

TABLE A-3

Unemployment Rates in Manufacturing Industries for All Persons in Industry,
Operatives, and Laborers, 1950

<i>Industry</i>	<i>All Persons</i>	<i>Operatives and Kindred Workers (n.e.c.)</i>	<i>Laborers (n.e.c.)</i>
Manufacturing	4.06	4.94	6.95
Durable goods	4.09	4.68	6.55
Logging	9.54
Sawmills, planing mills, and mill work	3.85	3.82	5.44
Miscellaneous wood products	4.81	5.44	7.25
Furniture and fixtures	3.62	4.11	5.65
Glass and glass products	2.89	3.09	6.33
Cement, and concrete, gypsum, and plaster products	2.90	3.46	5.10
Structural clay products	3.65	4.01	4.66
Pottery and related products	3.00	2.94	5.78
Miscellaneous nonmetallic mineral and stone products	2.86	3.16	5.63
Blast furnaces, steel works, and rolling mills	2.92	2.88	5.82
Other primary iron and steel industries	4.82	5.23	7.92
Primary nonferrous industries	3.01	3.38	5.78
Fabricated steel products	3.68	4.49	6.70
Fabricated nonferrous metal products	4.24	5.35	7.75
Not specified metal industries	4.22	5.13	5.90
Agricultural machinery and tractors	1.66	1.89	3.29
Office and store machines and devices	2.81	4.13	6.47
Miscellaneous machinery	3.20	4.02	5.92
Electrical machinery, equipment, and supplies	3.03	3.64	6.68
Motor vehicles and motor vehicle equipment	5.12	6.43	7.95
Aircraft and parts	4.09	5.13	7.58
Ship and boat building and repairing	11.97	13.37	20.99
Railroad and miscellaneous transpor- tation equipment	10.03	13.07	19.08
Professional equipment and supplies	2.89	3.77	3.92
Photographic equipment and supplies	3.03	4.71	4.81
Watches, clocks, and clockwork- operated devices	6.13	7.65	6.98
Miscellaneous manufacturing industries	5.19	6.81	7.73
Nondurable goods	3.97	5.08	7.43
Meat products	3.31	4.07	5.64
Dairy products	2.35	3.12	4.11
Canning and preserving fruits, vegetables, and sea foods	16.23	21.78	22.57
Grain-mill products	2.78	3.60	5.89
Bakery products	3.28	4.83	5.96
Confectionery and related products	6.69	8.50	9.82
Beverage industries	3.86	5.35	7.32
Miscellaneous food preparations and kindred products	5.10	6.52	9.45
Not specified food industries	4.14	6.51	8.91

(continued on next page)

UNEMPLOYMENT BY INDUSTRY

TABLE A-3 (continued)

<i>Industry</i>	<i>All Persons</i>	<i>Operatives and Kindred Workers (n.e.c.)</i>	<i>Laborers (n.e.c.)</i>
Nondurable goods (cont.)			
Tobacco manufactures	8.84	8.80	22.71
Knitting mills	3.04	3.25	5.49
Dyeing and finishing textiles, except knit goods	3.67	4.05	4.99
Carpet, rugs, and other floor coverings	2.12	2.68	3.22
Yarn, thread, and fabric mills	4.34	4.74	6.22
Miscellaneous textile mill products	3.77	4.42	6.39
Apparel and accessories	4.92	5.06	7.87
Miscellaneous fabricated textile products	4.54	5.28	7.59
Pulp, paper, and paperboard mills	2.24	2.24	4.23
Paperboard containers and boxes	3.70	4.52	6.10
Miscellaneous paper and pulp products	2.68	3.31	5.72
Printing, publishing, and allied industries	2.35	4.27	5.09
Synthetic fibers	2.83	3.18	5.65
Drugs and medicines	1.93	2.86	3.74
Paints, varnishes, and related products	2.53	3.39	5.69
Miscellaneous chemicals and allied products	2.93	3.66	6.12
Petroleum refining	2.09	1.91	5.38
Miscellaneous petroleum and coal products	3.07	3.29	6.18
Rubber products	3.14	3.64	5.65
Leather: tanned, curried, and finished	4.67	4.63	9.18
Footwear, except rubber	4.37	4.69	7.75
Leather products, except footwear	6.54	7.77	8.46
Not specified manufacturing industries	7.36	9.67	15.48

n.e.c. = not elsewhere classified.

Source: *Census of Population, 1950*, Vol. II, Part 1, Tables 124 and 130.

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TABLE A-4

Percentage Change in Employment in Construction, Manufacturing,
and Wholesale and Retail Trade, 1949-1952

<i>Major Industry Group and Month</i>	<i>1949</i>	<i>1950</i>	<i>1951</i>	<i>1952</i>
Construction:				
January	-8.6	-10.0	-4.7	-8.1
February	-3.3	-2.0	-2.9	5.2
March	2.3	1.8	7.9	1.6
April	4.1	7.7	4.4	9.6
May	4.5	6.0	5.5	3.4
June	4.3	6.7	3.4	4.2
July	2.5	3.4	4.0	2.0
August	6.8	1.8	3.5	3.3
September	-5.4	-4.4	-6.0	-6.4
October	7.0	0.8	-0.1	-1.9
November	-4.5	1.7	-8.2	0.5
December	-6.0	-7.3	0.9	-5.5
Average gross change ^a	4.9	4.5	4.3	4.3
Average net change ^b	0.3	0.5	0.6	0.6
Manufacturing:				
January	-3.7	-0.7	0.1	-1.5
February	-1.5	2.1	0.1	-0.8
March	-1.3	-1.4	2.3	-1.3
April	-0.9	0.2	0.1	0.2
May	-1.5	2.0	-1.7	-0.1
June	0.3	2.8	0.8	0.7
July	-1.9	-0.4	-0.1	0.9
August	4.2	5.7	1.7	4.1
September	-1.3	-0.7	-3.2	-3.9
October	-1.3	-0.1	1.6	1.9
November	-1.5	1.2	1.2	2.5
December	0.8	1.0	1.7	0.4
Average gross change ^a	1.7	1.5	1.2	1.5
Average net change ^b	-0.8	1.0	0.4	0.3
Wholesale and retail trade:				
January	-3.8	-4.9	-6.1	-4.3
February	-0.2	-1.4	-0.6	0.7
March	1.2	0.1	0.0	0.8
April	-0.8	1.3	-3.7	-2.8
May	-0.1	-1.5	3.9	-0.9
June	2.0	2.8	0.4	1.7
July	1.1	0.5	3.6	0.6
August	0.2	1.3	0.1	0.3
September	0.5	-2.2	-1.7	1.3
October	1.3	1.3	0.0	0.8
November	1.1	0.5	0.3	0.7
December	1.4	3.4	1.5	4.6
Average gross change ^a	1.1	1.8	1.9	1.6
Average net change ^b	0.3	0.1	-0.2	0.3

^a Based on arithmetic sum of 12 monthly percentages.

^b Based on algebraic sum of 12 monthly percentages.

Note: Data show change from previous month. Data are subject to sampling variability (see Appendix B).

Source: Current Population Survey, Bureau of the Census.

UNEMPLOYMENT BY INDUSTRY

TABLE A-5

Persons Employed in Specified Major Industry Group in One Month Distributed According to Their Employment Status and Major Industry Group in the Following Month, for Three Major Industry Groups, 1949-1952

MAJOR INDUSTRY GROUP, MONTH AND YEAR	TOTAL EMPLOYED IN SPECIFIED GROUP IN GIVEN MONTH (<i>per cent</i>)	PER CENT EMPLOYED IN SAME GROUP IN FOLLOWING MONTH	PER CENT NOT EMPLOYED IN SAME GROUP IN FOLLOWING MONTH	PERCENTAGE DISTRIBUTION OF PERSONS NOT EMPLOYED IN SAME GROUP IN FOLLOWING MONTH			
							<i>Not in Labor Force</i>
				<i>Employed in Different^a</i>			
				<i>Total</i>	<i>Group</i>	<i>Unemployed</i>	
Construction:							
1949:							
January	100	78.70	21.30	100	53.76	39.11	7.14
February	100	79.35	20.65	100	60.95	32.90	6.15
March	100	80.43	19.57	100	64.71	22.58	12.72
April	100	79.87	20.13	100	64.53	24.39	11.08
May	100	83.50	16.50	100	63.88	24.24	11.88
June	100	81.39	18.61	100	60.61	32.08	7.31
July	100	82.77	17.23	100	69.76	24.20	6.04
August	100	79.74	20.26	100	59.55	18.35	22.10
September	100	86.01	13.99	100	61.33	23.30	15.37
October	100	79.66	20.34	100	64.80	21.78	13.42
November	100	80.17	19.83	100	48.71	36.86	14.42
December	100	74.79	25.21	100	51.11	41.31	7.58
1950:							
January	100	79.70	20.30	100	53.65	31.77	14.58
February	100	83.75	16.25	100	62.15	29.97	7.88
March	100	82.91	17.09	100	66.16	20.78	13.06
April	100	83.50	16.50	100	72.00	16.00	12.00
May	100	85.65	14.35	100	70.43	18.34	11.23
June	100	82.05	17.95	100	64.57	19.78	15.65
July	100	81.53	18.47	100	68.33	18.19	13.48
August	100	80.14	19.86	100	65.43	12.58	21.99
September	100	81.78	18.22	100	75.14	11.91	12.95
October	100	85.76	14.24	100	65.03	19.52	15.45
November	100	81.25	18.75	100	61.60	22.99	15.41
December	100	79.64	20.36	100	55.68	29.19	15.14
1951:							
January	100	82.25	17.75	100	60.72	23.42	15.86
February	100	86.81	13.19	100	67.02	19.79	13.19
March	100	83.18	16.82	100	76.81	11.24	11.95
April	100	84.61	15.39	100	77.13	11.76	11.11
May	100	84.23	15.77	100	74.19	12.68	13.13
June	100	84.38	15.62	100	63.76	16.26	19.97
July	100	86.64	13.36	100	78.74	9.28	11.98
August	100	80.15	19.85	100	68.56	10.08	21.36
September	100	82.18	17.82	100	68.22	12.97	18.81
October	100	79.34	20.66	100	75.75	14.42	9.83
November	100	84.50	15.50	100	66.65	21.10	12.26
December	100	77.98	22.02	100	52.54	29.65	17.80

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UNEMPLOYMENT BY INDUSTRY

TABLE A-5 (continued)

MAJOR INDUSTRY GROUP, MONTH AND YEAR	TOTAL	PER CENT	PER CENT NOT	PERCENTAGE DISTRIBUTION OF			
	EMPLOYED	EMPLOYED	EMPLOYED	PERSONS NOT EMPLOYED IN SAME			
	IN SPECIFIED	IN SAME	IN SAME	GROUP IN FOLLOWING MONTH			
	GROUP IN	GROUP IN	GROUP IN	Total	Employed in Different ^a Group	Unemployed	Not in Labor Force
GIVEN MONTH	FOLLOWING	FOLLOWING	Group		Group	Force	
(<i>per cent</i>)	MONTH	MONTH	MONTH				
Construction (cont.):							
1952:							
January	100	84.28	15.72	100	68.00	22.58	9.41
February	100	83.29	16.71	100	62.78	25.25	11.97
March	100	85.25	14.75	100	73.15	15.12	11.73
April	100	81.96	18.04	100	70.01	15.74	14.25
May	100	81.74	18.26	100	77.27	11.56	11.17
June	100	84.34	15.66	100	73.31	14.50	12.20
July	100	84.24	15.76	100	73.79	13.32	12.88
August	100	77.85	22.15	100	71.42	8.98	19.59
September	100	83.04	16.96	100	79.83	9.14	11.03
October	100	83.57	16.43	100	74.98	13.69	11.32
November	100	79.24	20.76	100	69.04	16.61	14.35
December	100	80.26	19.74	100	59.80	27.80	12.41
Manufacturing:							
1949:							
January	100	91.08	8.92	100	52.91	28.03	19.06
February	100	91.60	8.40	100	58.28	26.22	15.49
March	100	91.42	8.58	100	60.26	22.84	16.90
April	100	90.34	9.66	100	57.76	28.05	14.18
May	100	91.75	8.25	100	60.61	25.21	14.18
June	100	90.29	9.71	100	58.39	27.70	13.90
July	100	91.95	8.05	100	57.14	23.23	19.63
August	100	90.42	9.58	100	55.47	17.00	27.52
September	100	89.82	10.18	100	59.00	22.62	18.39
October	100	90.15	9.85	100	53.10	31.68	15.23
November	100	92.55	7.45	100	60.00	27.79	12.21
December	100	91.09	8.91	100	58.70	28.84	12.46
1950:							
January	100	92.74	7.26	100	54.06	28.75	17.19
February	100	90.84	9.16	100	68.31	17.81	13.88
March	100	91.07	8.93	100	65.36	20.63	14.01
April	100	92.04	7.96	100	62.31	22.86	14.82
May	100	93.60	6.40	100	62.28	22.85	14.87
June	100	89.88	10.12	100	68.58	16.50	14.92
July	100	92.04	7.96	100	69.85	12.06	18.09
August	100	90.02	9.98	100	63.39	8.93	27.68
September	100	90.68	9.32	100	65.24	9.87	24.89
October	100	91.86	8.14	100	64.00	18.06	17.94
November	100	92.33	7.67	100	66.58	12.66	20.76
December	100	91.38	8.62	100	61.25	16.59	22.16

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UNEMPLOYMENT BY INDUSTRY

TABLE A-5 (continued)

MAJOR INDUSTRY GROUP, MONTH AND YEAR	TOTAL	PER CENT	PER CENT NOT	PERCENTAGE DISTRIBUTION OF			
	EMPLOYED	EMPLOYED	EMPLOYED	PERSONS NOT EMPLOYED IN SAME			
	IN SPECIFIED	IN SAME	IN SAME	GROUP IN FOLLOWING MONTH			
	GROUP IN	GROUP IN	GROUP IN		<i>Employed</i>		<i>Not in</i>
	GIVEN MONTH	FOLLOWING	FOLLOWING	<i>Total</i>	<i>in Different^a</i>	<i>Unemployed</i>	<i>Labor</i>
	(<i>per cent</i>)	MONTH	MONTH		<i>Group</i>		<i>Force</i>
Manufacturing (cont.):							
1951:							
January	100	90.87	9.13	100	61.45	11.06	27.49
February	100	91.69	8.31	100	61.08	12.29	26.63
March	100	90.14	9.86	100	65.01	12.58	22.41
April	100	89.68	10.32	100	68.54	11.91	19.55
May	100	91.35	8.65	100	69.13	11.33	19.54
June	100	89.83	10.17	100	67.03	11.91	21.06
July	100	90.66	9.34	100	65.78	9.95	24.28
August	100	88.66	11.34	100	67.46	9.26	23.28
September	100	89.10	10.90	100	69.17	10.09	20.73
October	100	91.02	8.98	100	67.19	14.91	17.91
November	100	91.60	8.40	100	70.92	12.51	16.57
December	100	89.47	10.53	100	61.35	15.38	23.27
1952:							
January	100	89.85	10.15	100	69.72	11.83	18.44
February	100	90.18	9.82	100	72.51	9.47	18.02
March	100	89.65	10.35	100	68.96	11.61	19.44
April	100	89.47	10.53	100	73.24	11.86	14.90
May	100	89.27	10.73	100	74.56	10.25	15.19
June	100	88.95	11.05	100	66.52	13.85	19.64
July	100	91.08	8.92	100	68.20	13.21	18.59
August	100	87.60	12.40	100	63.63	10.56	25.81
September	100	90.00	10.00	100	72.13	7.39	20.48
October	100	91.06	8.94	100	74.69	7.50	17.81
November	100	90.27	9.73	100	73.92	9.75	16.32
December	100	90.59	9.41	100	70.11	13.09	16.81
Wholesale and retail trade:							
1949:							
January	100	88.20	11.80	100	54.87	17.27	27.86
February	100	89.87	10.13	100	64.36	11.85	23.79
March	100	87.66	12.34	100	59.56	10.37	30.06
April	100	86.68	13.32	100	63.59	9.91	26.50
May	100	88.36	11.64	100	65.72	12.37	21.91
June	100	87.68	12.32	100	57.92	13.24	28.84
July	100	87.00	13.00	100	58.38	14.00	27.62
August	100	86.61	13.39	100	51.79	10.37	37.84
September	100	86.83	13.17	100	59.26	12.29	28.45
October	100	87.79	12.21	100	57.30	13.69	29.02
November	100	89.02	10.98	100	65.03	11.75	23.22
December	100	84.63	15.37	100	49.32	19.06	31.62

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UNEMPLOYMENT BY INDUSTRY

TABLE A-5 (continued)

MAJOR INDUSTRY GROUP, MONTH AND YEAR	TOTAL	PER CENT	PER CENT NOT	PERCENTAGE DISTRIBUTION OF			
	EMPLOYED	EMPLOYED	EMPLOYED	PERSONS NOT EMPLOYED IN SAME			
	IN SPECIFIED	IN SAME	IN SAME	GROUP IN FOLLOWING MONTH			
	GROUP IN	GROUP IN	GROUP IN		<i>Employed</i>		<i>Not in</i>
	GIVEN MONTH	FOLLOWING	FOLLOWING		<i>in Different^a</i>		<i>Labor</i>
	(<i>per cent</i>)	MONTH	MONTH	<i>Total</i>	<i>Group</i>	<i>Unemployed</i>	<i>Force</i>
Wholesale and retail trade (cont.):							
1950:							
January	100	86.98	13.02	100	64.67	14.44	20.89
February	100	86.72	13.28	100	60.99	11.90	27.11
March	100	87.54	12.46	100	68.54	11.32	20.14
April	100	86.03	13.97	100	60.06	11.10	28.85
May	100	88.88	11.12	100	62.50	12.68	24.82
June	100	85.58	14.42	100	66.30	9.64	24.06
July	100	85.45	14.55	100	66.78	7.08	26.13
August	100	84.23	15.77	100	57.70	5.96	36.33
September	100	85.64	14.36	100	60.79	7.17	32.03
October	100	86.69	13.31	100	67.32	8.87	23.82
November	100	88.43	11.57	100	64.74	10.37	24.89
December	100	81.89	18.11	100	49.81	11.10	39.09
1951:							
January	100	85.62	14.38	100	60.22	9.46	30.32
February	100	85.12	14.88	100	63.91	7.80	28.29
March	100	82.55	17.45	100	61.63	6.93	31.44
April	100	86.49	13.51	100	67.65	5.18	27.17
May	100	85.09	14.91	100	63.69	7.45	28.86
June	100	85.57	14.43	100	65.56	9.36	25.09
July	100	85.24	14.76	100	66.73	7.05	26.22
August	100	83.28	16.72	100	52.21	5.98	41.81
September	100	83.13	16.87	100	62.48	6.34	31.18
October	100	86.31	13.69	100	66.76	6.36	26.88
November	100	86.43	13.57	100	65.17	6.77	28.06
December	100	82.31	17.69	100	54.89	6.61	38.50
1952:							
January	100	84.98	15.02	100	63.38	9.99	26.63
February	100	86.45	13.55	100	70.90	6.87	22.23
March	100	83.60	16.40	100	70.24	5.18	24.57
April	100	83.50	16.50	100	66.61	5.58	27.82
May	100	83.73	16.27	100	64.29	8.42	27.29
June	100	84.22	15.78	100	64.20	9.25	26.55
July	100	84.94	15.06	100	68.39	5.91	25.70
August	100	83.22	16.78	100	55.01	5.30	39.69
September	100	84.22	15.78	100	62.70	4.69	32.62
October	100	84.06	15.94	100	67.57	8.09	24.34
November	100	86.73	13.27	100	63.75	7.84	28.41
December	100	81.45	18.55	100	55.80	6.90	37.30

^a Includes all major industry groups other than the one specified; e.g. on the construction lines, "different" includes agriculture, mining, manufacturing, public utilities, trade, services, etc.

Note: Data are subject to sampling variability (see Appendix B).

Source: Current Population Survey, Bureau of the Census.

UNEMPLOYMENT BY INDUSTRY

TABLE A-6

Persons Employed in Specified Major Industry Group in One Month Distributed According to Their Employment Status and Major Industry Group in the Previous Month, for Three Major Industry Groups, 1949-1952

MAJOR INDUSTRY GROUP, MONTH AND YEAR	TOTAL	PER CENT	PER CENT NOT	PERCENTAGE DISTRIBUTION OF			
	EMPLOYED	EMPLOYED	EMPLOYED	PERSONS NOT EMPLOYED IN SAME			
	IN SPECIFIED GROUP IN GIVEN MONTH (<i>per cent</i>)	IN SAME GROUP IN PREVIOUS MONTH	IN SAME GROUP IN PREVIOUS MONTH	GROUP IN PREVIOUS MONTH			
					<i>Employed in Different^a</i>	<i>Not in Labor Force</i>	
				<i>Total</i>	<i>Group</i>	<i>Unemployed</i>	
Construction:							
1949:							
January	100	83.45	16.55	100	81.58	11.35	7.07
February	100	81.31	18.69	100	62.01	28.84	9.15
March	100	77.61	22.39	100	56.59	32.60	10.81
April	100	77.26	22.74	100	51.45	40.24	8.31
May	100	76.41	23.59	100	61.59	26.16	12.25
June	100	80.01	19.99	100	62.18	24.81	13.01
July	100	79.47	20.53	100	64.63	20.59	14.78
August	100	77.42	22.58	100	62.78	26.50	10.72
September	100	84.34	15.66	100	62.26	31.35	6.39
October	100	80.37	19.63	100	62.32	24.13	13.54
November	100	83.44	16.56	100	55.37	35.39	9.24
December	100	85.26	14.74	100	72.46	19.06	8.48
1950:							
January	100	83.08	16.92	100	66.49	19.80	13.71
February	100	81.38	18.62	100	51.61	37.27	11.12
March	100	82.24	17.76	100	52.36	38.57	9.07
April	100	77.16	22.84	100	60.51	32.92	6.57
May	100	78.75	21.25	100	56.59	31.56	11.85
June	100	80.25	19.75	100	56.10	28.30	15.59
July	100	79.35	20.65	100	66.59	20.63	12.78
August	100	80.01	19.99	100	67.48	17.76	14.76
September	100	83.60	16.40	100	80.12	12.99	6.89
October	100	80.67	19.33	100	67.08	23.46	9.46
November	100	84.00	16.00	100	79.63	12.81	7.56
December	100	87.29	12.71	100	72.33	19.81	7.86
1951:							
January	100	83.40	16.60	100	64.42	21.55	14.03
February	100	84.24	15.76	100	60.24	22.26	17.50
March	100	80.42	19.58	100	56.31	25.55	18.14
April	100	79.41	20.59	100	65.11	24.68	10.20
May	100	80.00	20.00	100	67.70	12.50	19.80
June	100	81.26	18.74	100	73.59	11.31	15.10
July	100	81.04	18.96	100	68.72	12.71	18.57
August	100	83.64	16.36	100	74.27	13.02	12.71
September	100	85.19	14.81	100	72.65	13.98	13.37
October	100	82.36	17.64	100	74.38	13.55	12.07
November	100	86.38	13.62	100	75.62	11.23	13.14
December	100	83.66	16.34	100	78.40	9.91	11.69

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UNEMPLOYMENT BY INDUSTRY

TABLE A-6 (continued)

MAJOR INDUSTRY GROUP, MONTH AND YEAR	TOTAL EMPLOYED IN SPECIFIED GROUP IN GIVEN MONTH (<i>per cent</i>)	PER CENT EMPLOYED IN SAME GROUP IN PREVIOUS MONTH	PER CENT NOT EMPLOYED IN SAME GROUP IN PREVIOUS MONTH	PERCENTAGE DISTRIBUTION OF PERSONS NOT EMPLOYED IN SAME GROUP IN PREVIOUS MONTH			
				<i>Employed in Different^a Group</i>	<i>Unemployed</i>	<i>Not in Labor Force</i>	
							<i>Total</i>
Construction (cont.):							
1952:							
January	100	84.76	15.24	100	79.33	11.35	9.32
February	100	80.01	19.99	100	64.35	26.60	9.05
March	100	81.85	18.15	100	65.60	20.07	14.33
April	100	77.76	22.24	100	60.75	26.26	12.99
May	100	79.29	20.71	100	68.76	18.78	12.46
June	100	78.52	21.48	100	70.56	12.16	17.28
July	100	82.77	17.23	100	75.78	14.11	10.10
August	100	81.56	18.44	100	74.15	15.07	10.79
September	100	83.15	16.85	100	73.96	13.29	12.75
October	100	84.74	15.26	100	82.44	9.17	8.39
November	100	83.20	16.80	100	79.46	6.49	14.05
December	100	83.76	16.24	100	80.30	8.81	10.90
Manufacturing:							
1949:							
January	100	93.74	6.26	100	77.80	8.63	13.58
February	100	92.43	7.57	100	63.67	19.42	16.91
March	100	92.97	7.03	100	57.61	24.32	18.07
April	100	92.29	7.71	100	65.63	21.53	12.84
May	100	91.75	8.25	100	62.91	20.73	16.36
June	100	91.44	8.56	100	60.75	20.09	19.16
July	100	92.07	7.93	100	55.61	25.47	18.92
August	100	88.22	11.78	100	54.67	28.86	16.47
September	100	91.56	8.44	100	59.36	26.42	14.22
October	100	91.01	8.99	100	55.46	27.51	17.04
November	100	91.49	8.51	100	64.94	21.88	13.18
December	100	91.80	8.20	100	68.66	18.41	12.93
1950:							
January	100	91.74	8.26	100	65.62	21.67	12.71
February	100	90.83	9.17	100	62.75	24.62	12.64
March	100	92.14	7.86	100	58.45	25.67	15.88
April	100	90.95	9.05	100	67.18	25.75	7.07
May	100	90.25	9.75	100	56.41	29.23	14.36
June	100	91.07	8.93	100	58.34	18.70	22.96
July	100	90.26	9.74	100	60.82	20.62	18.56
August	100	87.03	12.97	100	55.20	24.44	20.35
September	100	90.51	9.49	100	68.53	16.42	15.05
October	100	90.44	9.56	100	62.93	12.98	24.08
November	100	90.47	9.53	100	67.75	11.03	21.22
December	100	91.17	8.83	100	70.52	13.38	16.10

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UNEMPLOYMENT BY INDUSTRY

TABLE A-6 (continued)

MAJOR INDUSTRY GROUP, MONTH AND YEAR	TOTAL EMPLOYED IN SPECIFIED GROUP IN GIVEN MONTH (<i>per cent</i>)	PER CENT EMPLOYED IN SAME GROUP IN PREVIOUS MONTH	PER CENT NOT EMPLOYED IN SAME GROUP IN PREVIOUS MONTH	PERCENTAGE DISTRIBUTION OF PERSONS NOT EMPLOYED IN SAME GROUP IN PREVIOUS MONTH			
				<i>Total</i>	<i>Employed in Different^a Group</i>	<i>Unemployed</i>	<i>Not in Labor Force</i>
Manufacturing (cont.):							
1951:							
January	100	91.11	8.89	100	68.24	11.04	20.72
February	100	90.39	9.61	100	56.82	17.59	25.60
March	100	89.60	10.40	100	56.87	13.83	29.30
April	100	89.83	10.17	100	71.39	13.37	15.24
May	100	91.03	8.97	100	72.13	10.59	17.28
June	100	90.47	9.53	100	66.49	10.92	22.58
July	100	89.81	10.19	100	60.75	13.64	25.61
August	100	89.09	10.91	100	66.45	12.01	21.54
September	100	91.59	8.41	100	71.67	13.69	14.64
October	100	90.59	9.41	100	69.04	11.06	19.89
November	100	89.86	10.14	100	68.74	12.23	19.03
December	100	89.99	10.01	100	67.96	15.37	16.67
1952:							
January	100	90.76	9.24	100	72.84	10.39	16.77
February	100	90.46	9.54	100	65.93	13.21	20.86
March	100	91.26	8.74	100	67.54	13.37	19.09
April	100	89.47	10.53	100	69.92	13.19	16.89
May	100	89.61	10.39	100	72.86	11.07	16.07
June	100	88.67	11.33	100	65.58	9.44	24.98
July	100	88.25	11.75	100	71.40	10.47	18.13
August	100	87.51	12.49	100	66.93	14.65	18.41
September	100	91.19	8.81	100	61.22	15.76	23.02
October	100	88.38	11.62	100	72.81	9.64	17.56
November	100	88.89	11.11	100	71.38	9.27	19.35
December	100	90.00	10.00	100	72.17	8.71	19.12
Wholesale and retail trade:							
1949:							
January	100	88.64	11.36	100	69.19	6.87	23.94
February	100	88.29	11.71	100	61.88	9.15	28.97
March	100	88.76	11.24	100	61.21	11.39	27.40
April	100	88.39	11.61	100	59.74	12.67	27.59
May	100	86.75	13.25	100	59.85	13.13	27.02
June	100	86.61	13.39	100	54.04	10.76	35.20
July	100	86.81	13.19	100	53.60	11.68	34.72
August	100	86.89	13.11	100	52.63	15.87	31.50
September	100	86.21	13.79	100	62.80	14.65	22.55
October	100	85.76	14.24	100	62.68	12.09	25.23
November	100	86.85	13.15	100	57.53	13.01	29.45
December	100	87.78	12.22	100	54.13	16.35	29.52

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UNEMPLOYMENT BY INDUSTRY

TABLE A-6 (continued)

MAJOR INDUSTRY GROUP, MONTH AND YEAR	TOTAL	PER CENT	PER CENT NOT	PERCENTAGE DISTRIBUTION OF			
	EMPLOYED	EMPLOYED	EMPLOYED	PERSONS NOT EMPLOYED IN SAME			
	IN SPECIFIED	IN SAME	IN SAME	GROUP IN PREVIOUS MONTH			
	GROUP IN	GROUP IN	GROUP IN				
	GIVEN MONTH	PREVIOUS	PREVIOUS		<i>Employed</i>		<i>Not in</i>
	(<i>per cent</i>)	MONTH	MONTH	<i>Total</i>	<i>in Different^a</i>	<i>Unemployed</i>	<i>Labor</i>
					<i>Group</i>		<i>Force</i>
Wholesale and retail trade (cont.):							
1950:							
January	100	89.01	10.99	100	69.88	9.28	20.84
February	100	88.28	11.72	100	61.38	12.11	26.51
March	100	86.63	13.37	100	63.72	15.56	20.72
April	100	87.81	12.19	100	71.84	17.16	11.00
May	100	87.34	12.66	100	58.29	15.56	26.15
June	100	86.41	13.59	100	52.69	10.67	36.64
July	100	85.22	14.78	100	62.58	10.28	27.13
August	100	84.36	15.64	100	58.18	11.38	30.43
September	100	85.99	14.01	100	64.84	9.70	25.46
October	100	84.22	15.78	100	57.54	10.14	32.32
November	100	86.00	14.00	100	60.93	8.64	30.43
December	100	85.29	14.71	100	54.04	9.72	36.23
1951:							
January	100	87.08	12.92	100	65.24	9.37	25.39
February	100	85.80	14.20	100	57.89	8.73	33.38
March	100	85.11	14.89	100	49.33	10.34	40.34
April	100	85.54	14.46	100	66.69	9.40	23.91
May	100	83.14	16.86	100	62.93	6.94	30.13
June	100	84.68	15.32	100	61.49	5.16	33.36
July	100	82.52	17.48	100	56.10	9.79	34.12
August	100	85.04	14.96	100	59.83	7.69	32.49
September	100	84.69	15.31	100	66.30	7.18	26.52
October	100	83.20	16.80	100	58.90	8.34	32.76
November	100	85.99	14.01	100	63.03	7.28	29.69
December	100	85.08	14.92	100	57.10	7.31	35.59
1952:							
January	100	85.98	14.02	100	67.14	6.27	26.59
February	100	84.31	15.69	100	65.11	6.12	28.76
March	100	85.67	14.33	100	70.48	7.26	22.26
April	100	86.00	14.00	100	65.86	7.36	26.79
May	100	84.30	15.70	100	65.35	5.54	29.11
June	100	82.37	17.63	100	57.57	7.94	34.49
July	100	83.79	16.21	100	63.95	8.27	27.78
August	100	84.66	15.34	100	62.39	8.74	28.88
September	100	82.15	17.85	100	61.01	7.56	31.43
October	100	83.66	16.34	100	65.69	5.08	29.24
November	100	83.54	16.46	100	58.81	4.74	36.45
December	100	82.92	17.08	100	57.20	7.96	34.84

^a Includes all major industry groups other than the one specified; e.g. on the construction lines, "different" includes agriculture, mining, manufacturing, public utilities, trade, services, etc.

Note: Data are subject to sampling variability (see Appendix B).

Source: Current Population Survey, Bureau of the Census.

UNEMPLOYMENT BY INDUSTRY

TABLE A-7

Unemployment Rates for the Experienced Civilian Labor Force,
by Industry, 1950 and 1940

INDUSTRY	UNEMPLOYMENT RATES		RATIO ^a OF 1950 RATE TO 1940 RATE
	1950	1940 ^b	
Total	4.62	13.25	34.9
Total, except industry not reported	3.55	11.05	32.1
Agriculture, forestry, and fisheries	2.03	7.28	27.9
Agriculture	1.97	7.01	28.1
Forestry	3.78	37.37	10.1
Fisheries	6.60	12.39	53.3
Mining	4.05	17.74	22.8
Metal mining	5.00	15.01	33.3
Coal mining	4.32	19.20	22.5
Crude petroleum and natural gas extraction	3.37	11.59	29.1
Nonmetallic mining and quarrying, except fuel	3.32	23.97	13.9
Construction	8.08	41.39	19.5
Manufacturing	4.06	10.07	40.3
Durable goods	4.09	9.42	43.4
Lumber and wood products, except furniture	5.15	12.62	40.8
Logging	9.54	22.07	43.2
Sawmills, planing mills, and mill work	3.85	9.99	38.5
Miscellaneous wood products	4.81	9.66	49.8
Furniture and fixtures	3.62	11.08	32.7
Stone, clay, and glass products	3.03	9.70	31.2
Glass and glass products	2.89	9.11	31.7
Cement, and concrete, gypsum, and plaster products	2.90	8.08	35.9
Structural clay products	3.65	13.13	27.8
Pottery and related products	3.00	6.16	48.7
Miscellaneous nonmetallic mineral and stone products	2.86	10.73	26.7
Metal industries	3.56	10.16	35.0
Blast furnace, steel works, and rolling mills	2.92	12.18	24.0
Other primary iron and steel industries	4.00	9.22	43.4
Fabricated steel products			
Primary nonferrous industries	3.41	7.54	45.2
Fabricated nonferrous metal products			
Not specified metal industries	4.22	11.97	35.3
Machinery, except electrical	2.96	6.37	46.5
Agricultural machinery and tractors	1.66	5.03	33.0
Office and store machines and devices	2.81	4.75	59.2
Miscellaneous machinery	3.20	6.74	47.5

(continued on next page)

UNEMPLOYMENT BY INDUSTRY

TABLE A-7 (continued)

INDUSTRY	UNEMPLOYMENT RATES		RATIO ^a OF 1950 RATE TO 1940 RATE
	1950	1940 ^b	
Manufacturing (cont.)			
Durable Goods (cont.)			
Electrical machinery, equipment and supplies	3.03	7.05	43.0
Transportation equipment	6.02	8.48	71.0
Motor vehicles and motor vehicle equipment	5.12	9.42	54.4
Aircraft and parts	4.09	3.34	122.5
Ship and boat building and repairing	11.97	7.35	162.9
Railroad and miscellaneous transpor- tation equipment	10.03	11.61	86.4
All other durable goods	4.68	8.89	52.6
Professional equipment and supplies	2.93	3.65	80.3
Photographic equipment and supplies			
Watches, clocks, and clockwork- operated devices			
Miscellaneous manufacturing industries			
Nondurable goods	3.97	10.31	38.5
Food and kindred products	5.12	9.80	52.2
Meat products	3.31	8.35	39.6
Dairy products	2.35	5.96	39.4
Canning and preserving fruits, vegetables and sea foods	16.23	22.61	71.8
Grain-mill products	2.78	6.13	45.4
Bakery products	3.28	8.68	37.8
Confectionery and related products	6.69	12.29	54.4
Beverage industries	3.86	6.77	57.0
Miscellaneous food preparations and kindred products	4.86	11.92	40.8
Not specified food industries			
Tobacco manufactures	8.84	13.38	66.1
Textile mill products	3.97	9.52	41.7
Knitting mills	3.04	7.30	41.6
Dyeing and finishing textiles, except knit goods	3.67	9.27	39.6
Carpets, rugs, and other floor coverings	2.12	5.99	35.4
Yarn, thread, and fabric mills	4.34	10.37	41.9
Miscellaneous textile mill products	3.77	8.60	43.8
Apparel and other fabricated textile products	4.89	18.58	26.3
Apparel and accessories	4.92	18.62	26.4
Miscellaneous fabricated textile products	4.54	17.96	25.3

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UNEMPLOYMENT BY INDUSTRY

TABLE A-7 (continued)

INDUSTRY	UNEMPLOYMENT RATES		RATIO ^a OF 1950 RATE TO 1940 RATE
	1950	1940 ^b	
Manufacturing (cont.)			
Nondurable goods (cont.)			
Paper and allied products	2.71	6.35	42.7
Pulp, paper, and paperboard mills	2.24	5.49	40.8
Paperboard containers and boxes	3.70	8.86	41.8
Miscellaneous paper and pulp products	2.68	6.29	42.6
Printing, publishing, and allied industries	2.35	7.69	30.6
Chemicals and allied products	2.80	5.75	48.7
Synthetic fibers	2.83	4.03	70.2
Paints, varnishes, and related products	2.53	5.45	46.4
Drugs and medicines	2.83	6.04	46.9
Miscellaneous chemicals and allied products			
Petroleum and coal products	2.18	5.11	42.7
Petroleum refining	2.09	4.51	46.3
Miscellaneous petroleum and coal products	3.07	9.53	32.2
Rubber products	3.14	8.34	37.6
Leather and leather products	4.79	10.50	45.6
Leather: tanned, curried, and finished	4.67	12.03	38.8
Footwear, except rubber	4.37	10.24	42.7
Leather products, except footwear	6.54	10.21	64.1
Not specified manufacturing industries	7.36	19.77	37.2
Transportation, communication, and other public utilities	3.29	8.72	37.7
Transportation	4.02	10.36	38.8
Railroads and railway express service	2.88	8.31	34.7
Street railways and bus lines	1.68	4.47	37.6
Trucking service	4.80	15.46	31.0
Warehousing and storage	5.42	13.63	39.8
Taxicab service	4.56	8.38	54.4
Water transportation	11.60	16.12	72.0
Air transportation	2.95	6.76	43.6
Petroleum and gasoline pipe lines	4.00	9.31	43.0
Services incidental to transportation	3.27	8.45	38.7
Telecommunications	1.57	3.94	39.8
Telephone (wire and radio)	1.36	3.12	43.6
Telegraph (wire and radio)	4.08	8.48	48.1
Utilities and sanitary services	1.95	4.95	39.4
Electric light and power, and electric-gas utilities	1.65	4.26	38.7
Other and not specified utilities			
Gas and steam supply systems	2.01	4.71	42.7
Water supply	2.71	7.00	38.7
Sanitary services			

(continued on next page)

UNEMPLOYMENT BY INDUSTRY

TABLE A-7 (continued)

INDUSTRY	UNEMPLOYMENT RATES		RATIO ^a OF 1950 RATE TO 1940 RATE
	1950	1940 ^b	
Wholesale and retail trade	3.51	8.08	43.4
Wholesale trade	3.03	6.74	45.0
Retail trade	3.62	8.34	43.4
Food stores, except dairy products	2.64	7.07	37.3
Dairy products stores and milk retailing	2.14	6.63	32.3
General merchandise stores	3.69	10.14	36.4
Five and ten cent stores	4.30	7.44	57.8
Apparel and accessories stores, except shoe stores	3.28	8.54	38.4
Shoe stores	2.68	9.04	29.6
Furniture and housefurnishings stores	2.57	6.61	38.9
Household appliance and radio stores	2.67	7.71	34.6
Motor vehicles and accessories retailing	2.33	5.40	43.1
Gasoline service stations	3.03	5.84	51.9
Drug stores	2.96	6.87	43.1
Eating and drinking places	6.34	11.67	54.3
Hardware and farm implement stores	1.51	3.79	39.8
Lumber and building material retailing	2.89	7.32	39.5
Liquor stores	2.82	4.23	66.7
Retail florists	2.41	5.82	41.4
Jewelry stores	2.80	4.64	60.3
Fuel and ice retailing	4.09	10.36	39.5
Miscellaneous retail stores	2.43	5.72	42.5
Not specified retail trade	4.18	13.46	31.1
Finance, insurance, and real estate	1.74	5.23	33.3
Banking and credit agencies	1.17	4.69	24.9
Security and commodity brokerage, and investment companies			
Insurance			
Real estate (including real estate-insurance-law offices)	2.99	7.22	41.4
Business and repair services	3.81	12.14	31.4
Advertising	3.22	9.52	33.8
Accounting, auditing, and bookkeeping services	3.25	9.13	35.6
Miscellaneous business services			
Automobile repair services and garages			
Miscellaneous repair services	4.20	13.64	30.8
Miscellaneous repair services	3.82	11.37	33.6
Personal services	4.66	9.69	48.1
Private households	5.70	10.73	53.1
Hotels and lodging places	5.25	9.04	58.1
Laundering, cleaning, and dyeing services	3.85	6.84	56.3
Dressmaking shops	2.32	8.39	27.7
Shoe repair shops			
Miscellaneous personal services			

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UNEMPLOYMENT BY INDUSTRY

TABLE A-7 (continued)

INDUSTRY	UNEMPLOYMENT RATES		RATIO ^a OF 1950 RATE TO 1940 RATE
	1950	1940 ^b	
Entertainment and recreation services	6.10	17.36	35.1
Radio broadcasting and television	3.34	7.80	42.8
Theaters and motion pictures	5.62	13.96	40.3
Bowling alleys, and billiard and pool parlors	7.04	20.58	34.2
Miscellaneous entertainment and recreation services			
Professional and related services	1.34	5.73	23.4
Medical and other health services, except hospitals	1.72	3.80	45.3
Hospitals			
Educational services, government	0.87	7.10	12.3
Educational services, private			
Welfare and religious services	1.59	2.98	53.4
Nonprofit membership organizations			
Legal services	1.93	7.96	24.2
Engineering and architectural services			
Miscellaneous professional and related services			
Public administration	3.07	7.17	42.8
Postal service	2.06	1.80	114.4
Federal public administration	5.06	13.05	38.8
State public administration	1.49	6.63	22.5
Local public administration			
Industry not reported	45.37	66.44	68.3

^a Actual ratio multiplied by 100.

^b Data for 1940 not completely adjusted for differences in industrial classification with 1950 data.

Note: Data for 1940 are subject to sampling variability (see Appendix B).

Source: *Census of Population, 1950*, Bureau of the Census, Vol. II, Part 1, Table 130; 1940 Series P-14, No. 13.

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Appendix B

Reliability of Data

The figures used in this paper are, like most statistical information, subject to various types of errors. These figures are affected by errors arising in the collection, processing, and publication stages; and, in the case of the figures based on a sample, from sampling variability. Except for sampling variability, the quantitative effects of these errors on the data have not been firmly established. Judgment tempered with caution must, therefore, be exercised in the use of the data. As a result, relationships and movements based on small differences in the figures were not made a subject of analysis and hypothesis in this paper. The reader is urged to adopt a similar conservative approach in any further use of the data presented here. (The fact that the figures in certain tables were computed to two decimal places does not necessarily mean the data are valid to this degree of detail; rather, it merely reflects some clerical overenthusiasm.)

MONTH-TO-MONTH DATA

A special caution is necessary with regard to reliability of the "month-to-month" statistics used in Tables 1 to 4 and Appendix Tables A-1, A-5, and A-6. This fairly new body of information (frequently identified as "gross change" data) is developed by pairing the results of two successive monthly enumerations of an individual. Random response and other types of variations, which tend to compensate in the data for any single month, give rise in the month-to-month comparisons to spurious changes from one category to another. The element of greatest analytical interest in these data—the movements from one category to another—is thereby exaggerated. Whether the degree of overstatement is sufficient to distort the true relationships is not now known.

SAMPLING VARIABILITY

Except for Appendix Table A-3 and the 1950 data in Appendix Table A-7, the figures in this paper are based on samples of the population and are, therefore, subject to sampling variability. Measures of this variability are given below in terms of standard errors. The chances are about 2 out of 3 that the difference due to sampling variability between an estimate and the figure that would have been obtained from a complete count of the population is less than the standard error. The chances are about 19 out of 20 that the difference is less than twice the standard error, and 99 out of 100 that it is less

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than 2½ times the standard error. Linear interpolation can be used for percentages not shown in the standard error tables.

The standard error of a percentage is dependent on the size of the base on which the percentage was computed. Since virtually all of the figures in this paper are in the form of percentages, a full statement on sampling variability here would require the listing of many absolute numbers. In view of the generally broad approach taken in this paper, other (and unmeasured) types of error in the figures, and space limitations, it was deemed sufficient to present only the condensed information given below.

The approximate standard errors of the percentages shown in Table 1 and Appendix Table A-1 are as follows:

NUMBER IN SAMPLE	ESTIMATED PERCENTAGE			
	20 or 80	30 or 70	40 or 60	50
25	8.5	9.8	10.4	10.7
50	6.0	6.9	7.4	7.6
100	4.3	4.9	5.1	5.2
250	2.7	3.2	3.3	3.4
500	1.9	2.3	2.4	2.4
1,000	1.4	1.7	1.9	1.9

The approximate standard errors of the percentages shown in Tables 2, 3, and 4, can be obtained from the table below. (For Table 2, use the "total in major industry group" lines.) This table can also be

MAJOR INDUSTRY GROUP AND TYPE OF PERCENTAGE	ESTIMATED PERCENTAGE				
	5 or 95	10 or 90	20 or 80	25 or 75	50
Construction:					
Percentages based on total in major industry group	0.6	0.8	1.0	1.1	1.3
Percentages based on persons not in major industry group in following (or previous) month	1.3	1.8	2.4	2.7	3.0
Manufacturing:					
Percentages based on total in major industry group	0.3	0.4	0.5	0.6	0.7
Percentages based on persons not in major industry group in following (or previous) month	0.9	1.2	1.7	1.8	2.0
Wholesale and retail trade:					
Percentages based on total in major industry group	0.3	0.5	0.6	0.7	0.8
Percentages based on persons not in major industry group in following (or previous) month	0.9	1.2	1.6	1.7	1.9

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used for the monthly data shown in Appendix Tables A-5 and A-6 by multiplying the standard errors by a factor of 2.

The approximate standard errors of the percentages shown in Appendix Table A-2 (except for the very few manufacturing industries with less than 50,000 workers) are less than the values shown below:

<i>Estimated Percentage</i>	<i>Maximum Value of Standard Error</i>
2	0.3
5	0.5
10	0.7
25	1.1
50	1.2

In Appendix Table A-4, the approximate standard errors for the monthly percentages for construction are 2.0, for manufacturing 1.0, and for trade 1.1.

In Table 5 and Appendix Table A-7, the 1940 unemployment rates are based partially on sample data. Presentation of all the pertinent information would require more detail here than seems necessary. An adequate rough approximation of the standard errors of the 1940 unemployment rates in Table 5 can be obtained by multiplying the rate by 1 per cent. For example, the unemployment rate of 17.74 for the mining major group is subject to an approximate standard error of 0.18. For the individual industries shown in Appendix Table A-7, the rate should be multiplied by 3 per cent. These approximations overstate the standard errors for the industries with large numbers of unemployed, and understate the standard errors for industries with small numbers of unemployed.

C O M M E N T

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Despite David L. Kaplan's many reservations, his analysis of unemployment by industry, especially when studied in conjunction with Hauser's findings on differential unemployment by occupational group, offers some encouragement for undertaking further research to test the following hypothesis: Granting that the relative stability of industrial accession and separation patterns calls for an explanation of its causes and for further statistical evidence, the pattern for each industry group and subgroup—whether described by means of averages and deviations from these averages or by some other numerical or visual

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indexes—lends itself to systematic computation and comparison. (In the present hypothesis, it constitutes the “known” quantity.)

The stability of the industry employment turnover patterns is enhanced by another known and relatively slow-changing component: Each industry’s technological basis necessitates a certain occupational composition of its work force. (On the other hand, the stability is lessened by the ups and downs of the business cycle.)

Narrowing the frame of reference from all industries to those industries covered by our federal-state unemployment insurance system, and from all employment turnover to the portion covered by that program and appearing as compensable unemployment insurance claims, one might establish industry-specific unemployment insurance claims loads and costs and, by expressing these through some ratio (e.g. to covered workers and payrolls, respectively), one might establish indexes that permit of comparison under certain conditions. Collected over a period of time, such series may add up to insured unemployment “profiles” for each covered industry over the period of one or more business cycles. Over a longer period, such time series may also reveal technological trends. Since unemployment insurance data are collected on a state-by-state basis, comparisons would be possible not only over time but also among states.

The practical objective in testing this hypothesis would be to arrive at industry-specific indexes of the insured or compensable unemployment risk under various economic conditions, chiefly the several phases of the business cycle. These indexes, in turn, could serve as the basis for the eventual construction of unemployment tables roughly comparable to—if subject to more qualification than—the life tables and disability tables commonly used in the operation of these respective branches of insurance.

While the primary use of such tables would be to refine unemployment insurance cost estimating techniques beyond their present rather crude stage of development, it is not inconceivable that the venture, if successful, may have implications of a broader economic analysis and policy nature. It is for this reason that I thought a mention of the fact that we in the Actuarial and Financial Services Division of the Bureau of Employment Security are planning to embark on such a project may be of interest to this Conference.